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ABSTRACT

The document analyzes the Training and Technology (TAT) Industrial Skill and Technical Training (ISTT) program and describes the basic relationships between various training components and their linkages to certain aspects of program structure and organization. The TAT ISTT program operations are presented within the conceptual framework of an input-output system which is the systems model that underlies industrial production. This system has four important functions: (1) the intake process (including recruitment procedures; tour, test, and interview; selection of trainees; and enrollment) identifies and imports the "raw" materials from which it produces something else and sustains itself; (2) the training process (including skill training and behavioral training) combines such imported elements in such fashion as to produce something different from the original state of these elements; (3) the process of placement distributes the new product back into the environment; and (4) program administration manages and coordinates the overall process. The TAT system contains some policy implications for manpower training: flexibility within the total employment process; relative efficiency of decentralizing skill training programs to utilize existing technical and physical resources; investment efficiency; and overtraining. A pattern interview form and inquiry forms in six skill and technical areas are appended. (Author/EC)

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Training
and
Technology

A SYSTEMS APPROACH FOR INDUSTRIAL TRAINING

CE 004 460

Training and Technology / Oak Ridge Associated Universities / Oak Ridge, Tennessee

TAT TRAINING ACCOMPLISHMENTS

Training and Technology (TAT) in its seven years of existence has trained 2,500 unemployed and underemployed persons, and has placed 95% of its graduates on industrial jobs. Starting wages for TAT graduates in 1972 averaged $3.29 an hour, and the average wage to date for 1973 graduates is $3.50 an hour.

Other program accomplishments include:

1. TAT has shown that training unskilled persons for skilled and technical industrial jobs can be accomplished in six months or less.

2. The quality of TAT's skill training is evidenced by the fact that the majority of the employers currently hiring TAT graduates have employed graduates of previous training cycles.

3. A recent followup survey of 472 TAT graduates revealed the following information:

   A. On the average, graduates were employed more than 90% of the time since graduation.

   B. The average pretraining wage for those employed prior to training was $1.93. The average starting wage for the group over the six-year period covered by the survey was $2.84 an hour. The average wage reported at the time of the survey had risen to $3.53 an hour.

   C. Most employers surveyed (87%) rated TAT graduates average to superior.

   D. TAT graduates continued to work toward a better standard of living by moving to better housing; securing transportation to work; managing money responsibly; insuring their homes, cars and lives; and working toward greater job competence.

4. TAT has developed and maintained flexible training areas which are adaptable to the requirements of a given trainee sponsor. TAT graduates have been placed in better than 170 industrial job titles with several major companies across the U. S. Training areas are added or inactivated according to job-market requirements.

5. TAT's seven years of operation have demonstrated the success of the industry-education model for training the disadvantaged, the unskilled and underemployed. The strength of the model lies in its combination of the diverse capabilities of the industrial and educational partners. The model has changed and been revised according to the training requirements set by sponsors.

Under the auspices of the U. S. Department of Labor, TAT is currently assisting other training programs in establishing adaptation of the industry-education model. The first such active adaptation is a Chicago area training consortium which began operating in May 1973. Participants include Standard Oil of Indiana, Searle Laboratories, National Accelerator Laboratory, Triton College, College of DuPage, and the Illinois State Employment Service and Illinois Division of Vocational Education. TAT served as the catalyst for program development and worked extensively in coordinating program planning and in establishing the roles of the various participants.

TRAINING AND TECHNOLOGY

A SYSTEMS APPROACH FOR INDUSTRIAL TRAINING

Prepared by

William E. Myers

Oak Ridge Associated Universities
Training and Technology Project
Operated under contract with the U. S. Atomic Energy
Commission through interagency agreements
with U. S. Department of Labor

Wendell H. Russell, Director

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August 1973

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This report analyzes the Training and Technology program in terms of a systems approach. Major units include the intake process, the training process, the process of placement, and program administration. The intake process deals with recruitment procedures, the tour, test and interview process, selection and enrollment. The training emphasizes skill training and complementary behavioral training. The process of placement emphasizes the role of placement as an integral of training and program administration. Program administration deals with the overall administration and organization of the program. Each of the sections represents a part of what is essentially a highly interrelated program. Finally, policy implications for manpower are outlined.

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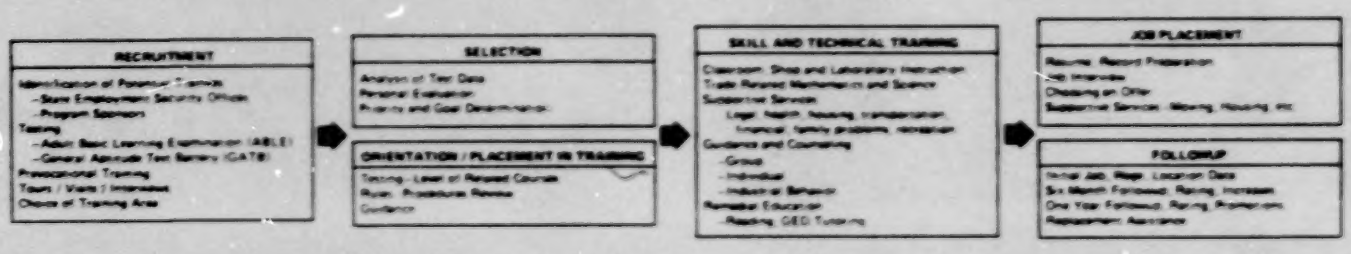
INTRODUCTION

This discussion is intended to provide an understanding of how the TAT Industrial Skill and Technical Training (ISTT) program accomplishes its work. It describes the basic relationships between various training components and links these relationships to certain aspects of program structure and organization. This insight is relevant in the case of TAT, for it has been remarked by many that TAT appears to enjoy unusual success even though few of its component programs are of unusual design. Possibly, it is synergy being noted here—that condition under which the output of the total program exceeds the sum of the output of the individual parts.

The TAT ISTT program operations are presented within the conceptual framework of an input-conversion-output system, the systems model that underlies industrial production. Such a system does at least four critical things: (1) it identifies and imports the "raw" materials from which it produces something else and sustains itself, (2) it combines such imported elements in such fashion as to produce something different from the original states of these elements, (3) it distributes the new product back into the environment, and (4) it manages and coordinates the overall process. Thus, this monograph is divided into chapters corresponding to each of the above functions, with a concluding chapter on implications for manpower policy.

The processes and methods described and recommended herein are those TAT has found in its experience to be the most effective in accomplishing program objectives.

THE INDUSTRIAL EMPLOYMENT PROCESS-SEQUENCE OF MAJOR ACTIVITIES



Chapter I

THE INTAKE PROCESS

The most obvious element that TAT must import from its environment is people to train. Other elements, such as expertise and funding, are also critical, but the focus here will be only upon the trainees. Recruitment is a major responsibility of the staff, which also oversees placement and liaison with trainee sponsors.

Before the recruitment process for any program can be initiated, the criteria under which trainees to be recruited will eventually be enrolled into training must be known. For TAT, criteria generally arise from two sources: (1) conditions accompanying funding for particular programs or for any combination of programs, and (2) goals and objectives generated within TAT.

Recruitment Procedures

The TAT model and methodology for recruitment were worked out largely during the 1967-68 period, TAT Phase I. Recruitment was conducted in close cooperation with the Tennessee Department of Employment Security, through its local offices and Youth Opportunity Centers (YOC). Additional assistance was enlisted from a number of labor organizations, human relations groups, churches, civic clubs, and black schools and civic organizations. Employment Security served as the initial contact, application, and testing point for potential trainees.

Recruitment drives for each program were accompanied by publicity campaigns that aimed for virtual saturation of the target population. News releases were sent to newspapers and radio and television stations, both before and during the recruitment period. Other news releases were sent to Employment Security (ES) Offices for distribution to local news media. Approximately 133,000 single sheet mailers were sent to rural boxholders for the first cycle and 400,000 for the second cycle. The intensive campaign resulted in 3,300 applications from which 525 trainees were selected.

These recruitment procedures were found inadequate to obtain the desired numbers of black applicants, even when efforts were conducted through black civic organizations and schools. Special efforts to identify and contact blacks individually through current employment application

files of major area employers resulted in some success. Assistance from leaders of the black community (often different persons from the publicly recognized leaders) helped to increase black applications. In the spring of 1968, the project engaged the part-time services of a Knoxville black police sergeant who was a leader in youth recreational activities. Nearly 200 applicants for TAT Phase II resulted directly from his efforts.

TAT recruitment is aggressive, for it has been learned that TAT's target group (the disadvantaged, particularly among minorities) must be sought out and informed about TAT and the opportunities it presents for them, as is demonstrated by the account given above. For this reason, TAT recruiters cover Tennessee and portions of other states (depending on terms of funding authorization and sponsorship).

TAT recruiters usually work in conjunction with ES offices; in fact, a member of the TAT staff is appointed to ES staff without pay. The recruiter notifies each appropriate ES office of the type applicant he is seeking and arranges a visit with that office to interview candidates. The date of the recruiting visit is publicized through any and all effective channels. In some locations, ES along handles recruitment publicity; in most others, the recruiter finds it useful to publicize his visit via radio, television, and people or organizations that are focal points of formal and informal communication. As noted, these informal sources are often the best sources of likely candidates. The printed media are less frequently used since ordinarily they are not read by groups from which TAT predominantly recruits.

At the ES office, the recruiter screens those interested for qualified prospects, who are asked to fill out applications and are invited to TAT for a tour, test and interview. If the ES office is located far from Oak Ridge, the Adult Basic Learning Examination (ABLE) may be administered on the spot, and the prospect may be interviewed by one or more industrial training supervisors who accompany the recruiter for that reason.

Some sponsors, such as the Concentrated Employment Programs (CEP) and certain U. S. Atomic Energy Commission contractors, are responsible for their own recruitment. However, TAT frequently is asked to provide assistance, available on an as-needed basis, which may range from simple consultation to actual coordination of each phase of the recruitment effort.

Tour, Test and Interview

Potential trainees are given a tour of the TAT facility (during which they receive an orientation to each training area and the career for which it trains), the ABLE test, and a personal interview with the supervisor of the skill area which each trainee prefers. An applicant may interview in more than one area if he desires. When groups are large, someone other than the supervisor may assist in interviewing, but typically it is the area supervisor who talks with the applicant. The interview is guided by a form (see Appendix A) upon which the interviewer notes certain factual information plus his impressions and evaluation of the interviewee. A particularly important question asked at this time is whether the interviewee will be willing to relocate in order to work in the skill for which he will be trained. An affirmative answer does not guarantee that the applicant will not change his mind by the time he is ready to be placed, but the question does serve to raise the issue and to place upon the applicant at least the moral constraint of his word.

At the time of the interview, the supervisor has the results of the ABLE previously administered. Though there is some question concerning the reliability of the ABLE test, it is still used at TAT because its shortness allows it to be administered and scored in time for an interview the same day.[1] When applicants have been required to return for a second day, the efficiency of the test-interview technique has significantly declined, due to a large number of no-shows. The main requirement TAT puts on applicants (aside from certain funding criteria and age considerations) is that they score at least a 6.0 grade level on the reading and mathematics portions of the ABLE. Experience has demonstrated that the effectiveness of TAT training ordinarily completed in six months diminishes when students with lower functional academic ability are admitted.

In some cases, the training supervisor has a General Aptitude Test Battery (GATB) score to aid him with the interview, but it has proven virtually impossible to obtain GATB scores on all applicants because many ES offices in remote places where TAT extensively recruits are not equipped to offer the test at acceptable intervals, if at all.

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[1]TAT is currently considering the use of a shorter and, we feel, more reliable test developed by TAT's education staff.

It is felt that involving the training supervisor in the screening and selection process is invaluable. A personal interview between the potential trainer and trainee can reinforce commitment between the two or may influence the trainee to alter his choice. Both have the opportunity to ask questions, and frequently trainees change their choice of skill areas once a few questions are answered. The supervisor is more motivated toward training people about whom he has some personal experience and understanding and whom he helped select. The extensive experience of supervisors in interviewing, plus their familiarity with the progress of people they select through training, generates a valuable source of feedback concerning the relationship of selection to performance.

During the interview, the supervisor pays special attention to indications of the applicant's motivation, work likes and dislikes, prior work and mechanical experience, and his willingness to relocate as necessary to take a good job.

Selection of Trainees

Completed applications, including the results of the ABLE and the interview, are fed into the pool from which selections of invitees into training will be made. Once the supervisor is advised of the number of trainees in each of several categories (minority, disadvantaged, veteran, female, etc.) necessary to maintain the required program percentages, he selects those individuals meeting these criteria who he feels have the best chance of succeeding.

When the supervisor's recommendations for selection are returned to the recruitment officer, conformity to criteria is re-examined. If no errors or differences of opinion exist, the selection list is then subject to approval from a specially constituted Selection Committee, comprised of key ORAU people in TAT, Union Carbide representatives from the various Oak Ridge plants, and at least one ES representative. The group oversees the proper application of and adherence to established selection criteria, and also keeps ES and the various plants informed of current groups within TAT training. The Committee meets when a sizable number of applications have been received for its action.

Historically, enrollment criteria for TAT have changed frequently, and in some cases suddenly, due to either funding conditions or slot vacancies. Thus, it is necessary to build a pool of applicants which has

sufficient breadth to allow TAT to meet guidelines with a minimum additional recruitment effort. This ability has become increasingly important as TAT moves toward an open entry and exit system, which means training slots may become open at various times in the cycle rather than being filled at the beginning of the cycle only. Therefore, it is an established procedure to have additional qualified applicants (about 10% of the total) available for each training area. Once primary candidates are selected for training, a list of alternates is drawn up and alternates are notified. Rather than selecting a candidate as an alternate for one area only, he will be considered for openings in either his first or second choice of training areas. This method of filling vacancies has proved quite effective and allows TAT to train the maximum number of trainees in a given cycle. Thus, TAT can make the optimum use of its facilities and staff and, in effect, lower costs per trainee.

Enrollment

Enrollment procedures include all routine paper work, classification of trainees with ES, plus administration of the California Test of Adult Basic Education (C-TABE), which is used for diagnostic purposes. On the basis of C-TABE, students are assigned their particular level in the multi-level math program, and those needing remedial attention will be identified for special work in reading, math, etc. General orientation is also accomplished during the period of enrollment activities. The orientation outlines expectation of the program and employers, stresses the value of staying in the program, and details such necessary routine information as emergency and safety procedures.

Chapter II

THE TRAINING PROCESS

Training is the means by which incoming low-skilled or unskilled trainees are converted into skilled and technical workers. Fundamentally, such training has two distinguishable components: (1) skill training, which prepared trainees to perform particular technical tasks, and (2) behavioral and attitudinal training, which prepares them to succeed in the non-task aspects of their work and of the industrial environment. The two are inseparably related, and TAT reinforces that relationship. Yet, the two components are distinctive enough to justify an individual discussion of each.

Skill Training

Skill instruction focuses on the concept of "employability," although the definition of this goal is difficult to work out for all areas and may change with the environment. "Employability" may emphasize adaptation to the widest number of possible job openings in periods of low employment and may stress the best or highest paying job in times of manpower scarcity. The benefit of this orientation is that training seeks to be relevant to the demands and dynamics of the job market as experienced continuously through the placement process and through direct feedback from employers. At times in the past, Union Carbide has been the major employer of TAT graduates and may again be in the future. Recently, such distant concerns as Ingalls Shipbuilding in Pascagoula, Mississippi, and Newport News Shipbuilding and Dry Dock Company in Newport News, Virginia, have become the largest employers of graduates. Skill training is guided by the needs and demands of employers currently significant to the placement of TAT graduates.

Attention to the market affects both curriculum choice and content. A training area can be phased out should the demand for its graduates lessen; this was the case with mechanical drafting. Another area which was phased out was glassblowing. In this case, it was not so much a question of demand as of efficiency. Glassblowing placement opportunities are so widespread, geographically, that placement required an inordinate effort compared to the other areas. On the other hand, an area which is in great demand may add a second training shift. Entirely new skill areas may be added in response to a changing market or at an employer's request.

Curriculum is modified to meet demands of both current and potential employers. Normally, this is done informally without incorporation of major changes in written curricula. However, in 1971 an entirely new 26-week curriculum was developed for a group of chemical technician trainees for Standard Oil of Indiana. Working with the Oak Ridge Y-12 Plant Chemical Laboratory Department and Standard Oil personnel, TAT staff developed a curriculum which covered chemical analysis and chemical process techniques and operations. More typically, as for the AVCO corporation, a machining trainee may be given more shop work on a given machine or set of machines in lieu of the broader training which covers a number of different machines. It requires that the skill training staff be given trust and leeway to handle instructional chores as it feels is appropriate. The TAT skill area staff has this autonomy, to the degree that employers usually deal directly with that staff to work out details of needed special training. The concept that ultimate employability is linked to the demands of particular employers overrides other definitions, such as those of certain trade organizations, etc.

When TAT was organized, curricula were written for each of the training areas. ORAU staff, Union Carbide instructional staff and supervisors and university staff all contributed to the writing of the curricula. The curricula were influenced by Union Carbide's experience, both in training and production, by ORAU's concern with supportive services and administration, and the university staff's concern with trade-related and remedial instruction. The end-product was then reviewed by both ORAU and Union Carbide Corporation.

These original 52-week curricula covered every phase of TAT training from skill training to supportive services. Curricula have since been revised as the length of training has been reduced to 42 weeks and then to 26 weeks. However, the majority of the revisions have taken place in practice without corresponding changes in written curricula.

Thus, written curricula are not followed inflexibly. There is a continual re-assessment of curricula because of the industrial environment in which the training is located and because of the continuing relationship with employers. Curriculum development tends to be evolutionary, and in reflecting experience it is largely done by Union Carbide skill staff. Usually this is catalyzed by the demands of the market as presented in personal conversations with employers.

Curriculum design focuses also on the ability of the student to learn the material, and this is assessed continuously by instructors and supervisors. In most areas there is some background of standard industrial training procedures (usually in Union Carbide) which provides guidelines. Individual instructor differences are also reflected in instruction. What is important is the concept of maximum time in the shop and of learning by doing. Much instruction is individualized essentially because putting the student to work the most time possible means that instructors will spend more time helping individuals or small groups who require it at critical points. Individualization is not a fetish to the shop instructor; only the natural way of approaching instruction given the objectives and conditions of TAT training. Being able to maintain a relatively low student-teacher ratio (approximately 12-1) is important to this.

Skill training is reinforced and complemented by trade-related instruction in mathematics, science, and blueprint reading. Certain mathematics classes and all blueprint classes are taught by Union Carbide instructors, most of them the same men seen in the shop.

All trade-related instruction attempts to train to specific job-related objectives. Curricula are reviewed with skill area supervisors and adjusted as needed to reflect the ties between this instruction and that in the shop. Currently, a system of five (or sometimes six) levels of mathematics instruction is utilized with students being placed in one according to C-TABE results. They move up as they are able, and if they "top out" may return to the shop (in at least some areas) to invest that time in furthering hands-on skills.

Another type instruction related to the shop is remedial instruction. This is really a backup for trade-related instruction, which often proves too formidable for students with particular deficiencies. One part-time teacher devotes her time primarily to remedial reading work, and time is formally allotted for tutoring in science and mathematics. Some community volunteers help regular staff in this task. A GED program, in a learning laboratory setting, is conducted for trainees who lack their high school diploma.

With the GED in hand, a trainee's prospects for a training-related job and better pay improve greatly. However, release of trainees to participate in the GED program is negotiated with the training supervisor, who affects the amount of time that trainees are scheduled to spend in

working toward the GED. While the staff prefers to have GED students four hours each week, in some cases they may be permitted only two or three hours. In each instance, the GED staff and training supervisors attempt to arrive at a balanced agreement which will serve the best interests of the trainee.

Behavioral Training

TAT focuses on excellent skill training as the core of employability success, but also heavily stresses ability of the trainee to adapt to an industrial environment. Regular attendance and punctuality, relationships to peers and supervisors, and observance of safety rules are emphasized. Our experience indicates that these factors contribute to a successful training program. In behavioral training TAT's physical location within industry is particularly valuable, because it is believable to the trainee. Walking through the gate and drawing an industrial identification badge along with regular employees reminds him that this is for real and that his training is directed toward a real job. One reason TAT is successful in encouraging appropriate behavior by individuals is that trainees enter the TAT doorway already disposed toward assuming industrial standards of behavior; somehow, schoolboy tricks seem out of place inside an industrial plant.

Much behavioral training occurs matter-of-factly in TAT, the majority of it in the shop. Supervisors have the same authority roles in TAT as in industry, although they cannot act unilaterally in major considerations affecting the trainee such as termination from training. The point is repeatedly made that being a good machinist or welder is much more than simply milling a good part or ably joining pieces of metal. It is also being a dependable employee—getting to work on time, being cooperative, etc. These factors are reinforced through everyday contacts with training personnel in shop and classes.

Some specific training is necessary in the area of completing applications, interviewing, etc., and is done through a series of seminars. Until recently there were seminars for many topics, but the training effectiveness of these was questioned, and currently the seminar format is used only for formal training activities for which they seem appropriate. Shop and counseling reinforcement seem to be more useful for attacking particular problems, such as disputes between trainees and persons in authority.

While elaborate behavioral modification designs have not been utilized here, TAT's performance compares well in this regard with programs with more sophisticated behavior modification activities. TAT takes motivation into account when selecting trainees, and the selection process is designed to match trainees to the program. It is also possible that credibility through the in-plant location and excellent skill training, in addition to an outstanding placement record, provide enough environmental support that other and more specific attitudinal and behavioral programs are not required. Another possible explanation is that despite a good array of supportive services available, the TAT climate is definitely job-centered—not trainee-centered. This climate communicates that it is the job, in training now and the paying job later, that is the most important thing in training. TAT is interested in successful graduates working, and is not more than normally interested in personal problems of students except as they directly affect training and employability. Such an atmosphere helps set a positive model for both staff and trainees which facilitates the objective of training.

Because there are, however, personal needs and problems which are legitimate and need attention, a Trainee Services staff focuses specifically on the person of the trainees. This difference of orientation exists as a necessary counterbalance and escape valve. It offers a normal range of supportive services from housing and transportation aid to veterans' benefits form assistance on to and including individual and group counseling.

Trainee Services is responsible for maintaining an overall picture of each trainee's progress, with each counselor assigned to specific training areas. The Trainee Services unit prepares a brief weekly report on each trainee, copies of which are sent to sponsors as appropriate. It is the unit's responsibility to identify potential problems as early as possible and to take the necessary steps to head them off. Each week a meeting (termed a "staffing") is conducted for each training area between skill area staff and the counselor assigned to that area. In this staffing either the counselor or training area staff may raise problems. The counselor and the foremen work out solutions in which they will cooperate.

Foremen and supervisors handle disciplinary problems until they become persistent or serious, at which time Trainee Services staff is involved. Terminations and suspensions from training must be approved

by both supervisor and counselor, with action generally not taken until at least three days (for investigation) after a write-up by the staff member requesting action. Frequently, differences of opinion occur between the skill area supervisor and the counselor over specific cases, but generally a compromise is reached since one member can veto the other. These compromises tend to be centered on alternative remedial measures, along with certain conditions the trainee is required to fulfill which appear to be sensible and relatively effective. However, it is not unusual for a counselor to approve a forced termination, especially when he feels that everything has been done for the trainee that can reasonably be expected.

A meeting for the formal evaluation of every trainee is held every 45 days, and each trainee receives a grade based on his total effort. Shop skills, trade-related grades, shop theory grades, and behavior ratings all appear as components of the evaluation. A completely effective grading system for such aggregate evaluations has not been found to date, but it is felt that reviewing and summing up work of the trainee over that period is useful in staying focused on the real training problems. These evaluations generally are done with inputs from Trainee Services, skill area foremen, and trade-related instructors, and are made available to prospective employers.

Chapter III

THE PROCESS OF PLACEMENT

Placement is considered an integral part of the total manpower development effort and, more than that, the most tangible and important indicator of program success.

As the channel through which the new product—the "employable" graduate—re-enters the environment, the placement office deals with trainees whose employability largely depends upon what people in the production process accomplished. This office must rely on other sections of TAT to select trainees who will not be placement liabilities (unwilling to relocate, for example), to modify training as needed to draw interested employers, and to provide accurate evaluations of trainees' skills and employability.

In addition, placement depends heavily upon what the placement officer does on his own accord. He must find jobs, establish rapport with employers, and match graduates and jobs satisfactorily. In TAT, he must a also bear an important part of the burden of preparing trainees to cope with the employment process.

The most significant boost to placement may be the fact that TAT training is located within industry, which gives it a head start in credibility with employers. Also, TAT is explained as an industrial training program seeking to serve industry—which does not mean that it serves the trainee less, only that good placement demands a great degree of pragmatism.

Early in the program's development, all related placement services were integrated, and the staff pursued a policy of actively directing placement efforts. Initial contact with companies was made possible by the cooperating efforts of ES personnel.

A first step was identifying a number of companies which might prove to be prospective employers for future graduates. This was done through two different sources: (1) a comprehensive listing of companies known to TAT personnel and trainees that might employ TAT graduates, and (2) listings of likely employers compiled by Union Carbide Corporation's Nuclear Division to place employees laid off during the company's employment decline of 1964-65. These two resources provided the first list of likely employers with whom contact was established.

The next step was to gather information about the companies to determine whether their manpower needs were in line with TAT training. After names of companies were compiled, a series of questionnaires were developed by TAT staff and mailed to these companies to collect information specific to each of the six training areas. Six different standard questionnaires, shown in Appendix B, were mailed out, selectively to different companies.

The primary objective of this effort was to discover the availability of jobs, any specific job requirements, and the match between job requirements and TAT training areas. When a questionnaire was returned which appeared promising, the company representative signing the form was contacted by phone and thanked for responding. This initial contact provided TAT staff with the opportunity to describe the TAT program, emphasizing that the instructors are skilled Union Carbide craftsmen and technicians and that the equipment on which trainees learn job skills is quite varied. Finally, an invitation was made by TAT staff to the company representative to visit the Y-12 Plant. This visit provided the opportunity to show the prospective employer the variety of equipment used in training as well as the industrial setting within which training occurs.

These questionnaires were used to compile information on possible employment sources during the first two years of the program. After that time, a large pool of employers had been developed and no new companies were actively sought. Thereafter, when one or two new companies became visible, information gathering was accomplished informally by telephone interview with a company representative.

The questionnaire approach served its purposes and is not now an active part of placement operations. It did, however, provide a comprehensive listing of companies with whom contact has been maintained and/or established as the need arises. Generally, when a trainee now lists a preferred company, contact with the company has already been established, and the occasion is used to re-establish contact.

Initial contacts with an employer occur in various ways. They may come through a visit by a staff member. Increasingly, they arise from referrals from some third party, or an employer may hear of the project and initiate contact himself. Often employers of TAT graduates will mention the program to other employers. The placement officer screens job ads in several large newspapers and contacts firms advertising for skills offered by TAT.

On contact, the TAT placement officer strongly encourages the employer to visit the training site. As noted, experience has demonstrated that employers are favorably impressed when they see the operation, the facilities and equipment available to it, and the skill and up-to-date technology of the Union Carbide staff. They can observe the shops, which with their order, discipline and hard work, reflect the industrial atmosphere; the scope and quality of the curricula; the fact that trainees punch a time clock and draw allowances only for days on which they are present; and the list of employers who have hired TAT graduates. The fact that Union Carbide has hired large numbers of graduates and still continues to support the program is important to employers who are concerned about filling their Equal Employment Opportunity obligations without loss of production performance. After the first visit, an employer with positions to fill usually is ready to discuss participation in the program.

During the employer's visit to TAT, there is, ideally, a discussion on how TAT can help the particular employer; however, this subject may come up any time, and is often handled by phone, especially with continuing employers familiar with the organization. At any rate, an honest attempt to "tailor" training to suit an employer's needs helps to cement the relationship and largely explains why most graduates go to employers who have hired TAT graduates previously.

At an early point, the placement officer attempts to visit the new employer in his plant. Old customers are visited as time and travel schedules permit, by one or more training supervisors, and efforts are made to contact supervisors of graduates at work or departments about to hire graduates. The wishes of the supervisor and tasks trainees perform (or will perform) are discussed and become material both for modifications of training and for talking with trainees regarding placement. During such a visit, the following information is sought:

1. Employer needs which might be filled by TAT graduates.
2. Modifications TAT might make for the sake of the employer.
3. The expected working situation for graduates:
   a. wages
   b. advancement or apprenticeship opportunities
   c. company support in making a move and adjustment
   d. job security (inquire about life of contracts for which company is hiring)

e. living conditions
   (1) transportation facilities
   (2) cost of living
   (3) housing (visit rental agencies)
   (4) social climate (from conversations and local papers)
   (5) recreation opportunities
   (6) self-improvement opportunities (company-paid tuition plans, proximate or in-plant training programs, nearby colleges, etc.)

Recommendations to trainees about jobs can be made on the basis of the above information.

It is important that the placement office be active in preparing trainees for placement in industry, because this office is in touch with the market and can identify the real jobs that are developing. Job development seminars are not sterile rituals, but may include illustrations from, allusions to, and application forms of real companies that will hire trainees from that particular class. Additionally, under the open enrollment and exit system, trainees continuously see others being hired and going off to jobs, both reassuring them and keeping them oriented on placement.

One of the lessons learned from the first training cycle led to the establishment of the career seminars. Slow placement rates were traced to two obstacles: (1) the lack of trainee familiarity with the skills needed in typical industrial selection procedures (for application forms, interviewing, testing), and (2) an inadequate concept on the part of the trainee for preparing for a career in industry.

The result was a broadening of TAT training. For although work behavior and skills are important, selection of trainees by employers begins with a review of the application form. Successful placement requires that the trainee be able to perform well in filling out applications and participating in interviews. Since the trainee's application is the first contact with industrial recruiters and the interview is the second, a trainee might never have the chance to demonstrate his skill if he has a an ill-prepared application, a poor interview manner, or poor test-taking skills.

The original seminars on placement were developed specifically to meet these obstacles and proved effective. With the next cycle, the problems typical of the first group dropped sharply; industrial recruiting

teams were complimentary about trainee behavior; job offers increased; and job stability improved. The content of the four Career Development Seminars includes the concept of placement, interview techniques, and testing methods.

Trainee preparation is accomplished through the series of four Career Development Seminars and through an open door policy of job counseling in the placement office. Early in the program, the placement officer circulates through the training areas to become familiar with new trainees. Those with worries begin filtering into his office soon after, where they can obtain information of job specifics, relocation, etc.

A major role of the placement officer is that of feedback mechanism from employer to training. He routes requests for training modifications, follows up on special requests as needed, and samples the texture and size of the market into which TAT graduates are placed. Experience has shown that national occupational figures, ES data banks, and other forms of pre-packaged data are of limited value to a placement operation for a program the size and type of TAT. Personal contacts and much telephone and road time are indispensable, as are other kinds of marketing activities, and the placement officer should be chosen carefully and specifically for his qualities in this job. His abilities, or lack of them, can make or break an excellent placement service.

Chapter IV

PROGRAM ADMINISTRATION

A noteworthy characteristic of the TAT Industrial Skill and Technical Training system is that it is decentralized. The relationships between units which have been mentioned were described in terms of direct communication flows between the units, in no case having to pass through an administrative unit. This is an accurate description, and one of the jobs of administrative personnel is to resolve conflicts which tend to impede this flow and to detour such matters to management desks. This decentralized strategy has been adopted because the nature of the tasks renders them best done and decided by the principals involved. Management personnel are mostly productively used in activities relating to overall program administrative chores—planning, policymaking, and conflict resolution. Not only has decentralization been dictated by certain task characteristics, but is also a product of the unique organizational arrangement by which Union Carbide Corporation and Oak Ridge Associated Universities participate as equal partners in the enterprise. This aspect of the program will be presented in more detail later in the chapter.

Throughout this marked decentralization, however, there exist administrative needs and functions which pull the program together as a whole. This part of the chapter will deal with some of these principal parameters of administrative policy.

The first matter to be considered in any training system is what it should train for and to what standards. Inherent in the foundation of TAT was the idea that it should train for industry and, beyond that, should focus on the needs of particular employers. The particular industries and employers have changed over the years, but the underlying idea has rooted and grown. TAT is frankly employer-centered in training design, for it feels that it can best serve the employment needs of its students by meeting the employment needs of its client industries. The needs of particular employers, rather than more abstract standards (such as may be taken from the DOT, certification tasks, etc.) are the main determinant by which standards are established and modified. In the beginning these were frequently standards of Union Carbide, the single largest employer of TAT graduates, and its needs were consonant with those of most other industries utilizing TAT graduates. In the recent

economic slowdown, however, Union Carbide employment declined, and as other companies became the principal employers, curriculum specifications were shifted to meet the new market. Even in non-skill aspects of the program—such as attendance or behavior standards—guidelines are set in accordance with identifiable industrial standards and procedures.

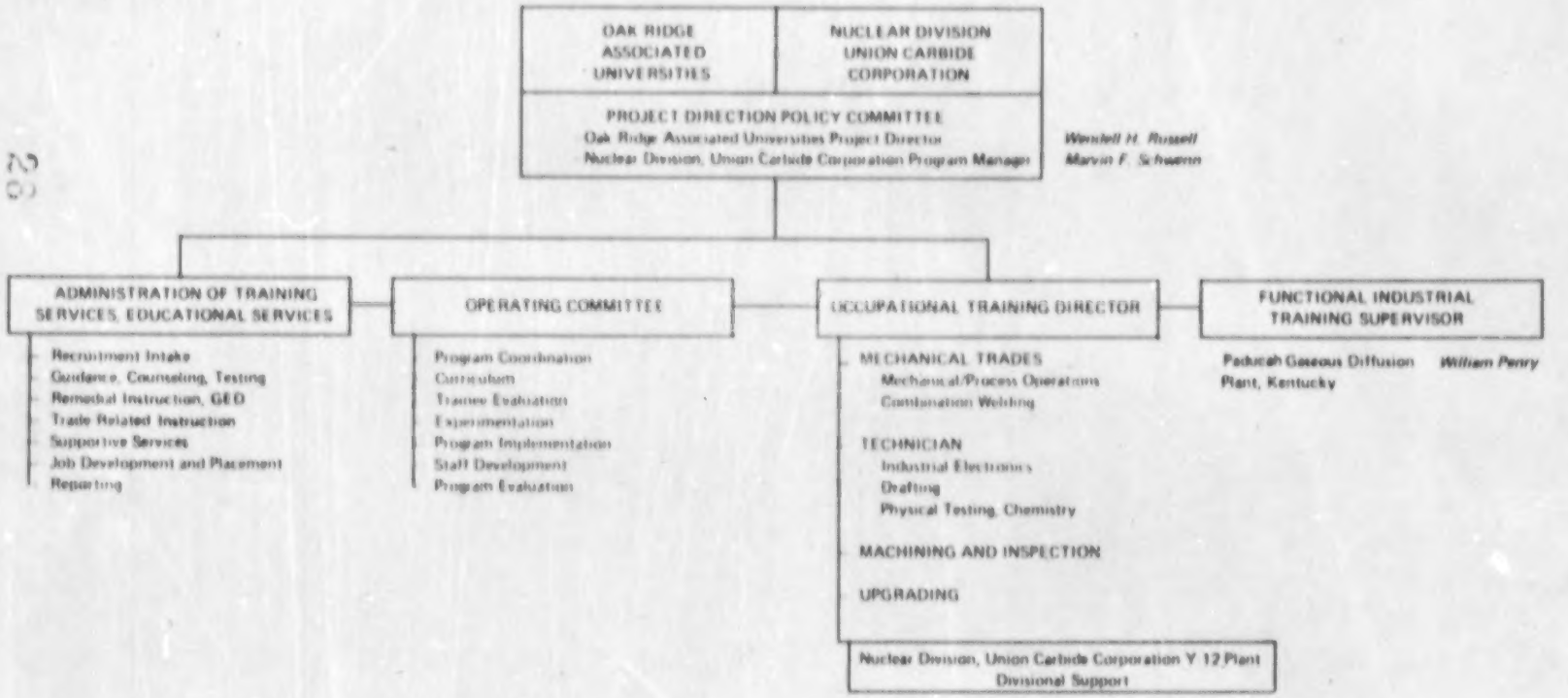
A second major dimension of program administration is organization—Union Carbide and ORAU participate as equal partners in the project. While both contribute considerable staff, the two staff lines are not mixed. This separation is accomplished through two mechanisms: (1) management at the top is by committees-of-two (a Policy Committee and an Operations Committee) comprised of one Union Carbide and one ORAU person, and (2) within the program there is a marked division by function. Basically, Union Carbide provides all skill training and ORAU provides all supportive services functions and administrative functions relating to the outside (such as proposals, reporting, allowances, etc.). Matters that cross organizational lines are settled by mutual adjustment either by management committees or negotiations between the program units. In no case does a staff member of one organization work under the direct supervision of a staff member of the other.

This organizational format eliminates many administrative concerns of an autonomous entity. Each staff member is covered by the appropriate organization. Equipment may be secured as needed, and the program can change shape, focus, and level with minimum of distortions since many staff members can be rotated to or from their parent organization.

The dual staffing pattern, which dictates a cooperative and participative administrative style rather than a traditional hierarchical system, presents challenges to TAT, and the program is greatly influenced by the ability of ORAU and Union Carbide to perform tightly interrelated functions without unity of organizational control. The problem is enhanced by the variety of backgrounds found across the staff. Ph.D.'s in the social sciences must relate with craftsmen, for example, in situations demanding mutual respect, trust, and confidence if high performance is to result. Personal and social values differ markedly across the staff, and mutual accommodations must be reached to preserve the psychic energy needed to dedicate to the better training of students. For these reasons, the managing of interpersonal relationships becomes an important task for the program managers.

TRAINING AND TECHNOLOGY

INDUSTRIAL SKILL AND TECHNICAL TRAINING



September 1

The fundamental structure of the TAT program should now be clear. The total task is divided by functions, with Union Carbide and ORAU each assuming special responsibilities. Questions of objectives and procedures transcend individual corporate lines, and are the subject of debate and compromise. This compromise may occur at the level of the Policy Committee, the Operations Committee, the training departments, or individual staff members. Frequently, accommodations are made at each level on the same issue. Union Carbide provides the skill training and all personnel and equipment needed for it, and provides and maintains facilities (such as classrooms, offices, etc.) for the use of the rest of the TAT Industrial Skill and Technical Training staff as well. ORAU provides all supportive services and does most of the paper work which flows outside the program.

Evaluation of program effectiveness has been covered in the previous description of the relationships between the units. It is worth adding, however, that ORAU has general responsibility for the research and development activities of TAT (related to, but not part of, the Industrial Skill and Technical Training program), and these include a fairly comprehensive evaluation effort. Much of this work has been in the form of studies on special issues, but recently an extensive survey of TAT graduates and their employers was conducted to provide more extensive and complete external feedback than the program has been able to collect in the past (see Program Accomplishments). Such an external unit, if practicable, would be most valuable in any such program.

Chapter V

POLICY IMPLICATIONS FOR MANPOWER TRAINING

The system described contains some policy implications for manpower training. The most important message is flexibility. TAT Industrial Skill and Technical Training makes its way by being able to perform the functions it finds to be critical to the total employment process. It can recruit, train, and place its students with focus on a single set of objectives from beginning to end. It can modify any one or all of these component phases to meet changing market demands or other types of pressures. By treating the problem of preparing for employment those who otherwise have poor employment prospects as a total problem—not just a training problem—TAT has the capability of diagnosing and treating a much wider variety of impediments to employment. When such impediments are situational, for example, it has not only the option of trying to change the person (which may not be very appropriate to the extent that the situation is a critical factor), but it may actually be able to remove the person from the situation. As an example, the program, during a severe economic slowdown, could still take a full quota of the poor from high unemployment areas, train them, and place them in jobs as successfully as ever by having available the option to identify out-of-state areas with manpower shortages and move into these areas individuals who, no matter how well trained, were unlikely to find acceptable employment locally. Although the current national system can theoretically perform this operation, it cannot do so at present with the speed and specificity needed to take advantage of this sort of opportunity.

The second important implication of TAT for manpower policy concerns the relative efficiency of decentralizing skill training programs to utilize technical and physical resources existing within investments already made by industry or government. Whereas national manpower policy has expended much effort to marshal a wide variety of resources into central facilities, TAT has found it useful to go to resources wherever it has discovered them. The underlying rationale is that less waste results from less-than-ideal arrangements of resources than from trying to duplicate those resources in some other place. In the case of TAT, this rationale seems to be validated by performance.

A third implication for manpower policy which the TAT model poses is that of investment efficiency. Throughout its seven years of operation, TAT has operated on a matching funds basis. Thus, funds available to one participant in such a consortium are matched by the other participants and a higher quality and more extensive training program is possible through the consortium than any one of the participants could manage. The sharing of expertise and resources means that duplication of efforts is kept to a minimum, and the strengths of a particular member are of benefit to all.

A fourth policy implication is the practice of overtraining. While a trainee who is identified as a potential employee of a particular company may receive very specific training with emphasis on particular techniques, trainees who do not have jobs identified participate in the much broader general training of his general area. He will cover a number of operations, any one of which may fit him for several industrial jobs; on the other hand, he is unlikely to ever utilize all the areas covered in training. Thus, he is overtrained for a given job, but he has the flexibility and background to move into a number of different jobs (this accounts for the 170 different job titles covered by TAT's skill areas). The key is the flexibility to train on either a very specific or very general level. Experience has proven that many employers, in fact, prefer to hire workmen who are overtrained.

WEM:lk
8/15/73

APPENDIX A

TRAINING AND TECHNOLOGY

PATTERN INTERVIEW FORM

Name:_____ Date:_____

Age:_____ Interviewer:_____

Training Area:_____

INTRODUCTION

TAT would like to find out as many things as possible from this applicant to support his application. Please review the application making sure that it is complete. Any items not clear should be completed at this time. This will make the applicant more at ease and more apt to communicate with the interviewer.

Review the work history of applicant (if appropriate); find out what his duties were, if it could be related to his training preference, why he left this job, etc.

Find out what phobias that applicant might have? (high places, tight places, etc.)

How does applicant feel about:

1. Doing heavy physical labor?

2. Doing dirty, boring work?

3. Doing repetitive work day after day?

If accepted into TAT find out:

1. Could he make it on the training allowances? List his monthly obligations and compare with his monthly income. (If applicable)

2. Would he have transportation to TAT?

3. What is his draft classification? If 1-Y or 4-F, find out why. If he has been 2-S, explain that it is very difficult to get a 2-A vocational deferment. Has he been called for a pre-induction physical?

4. If he lives outside of normal commuting distances from Oak Ridge would he be willing to move to Oak Ridge?

5. After becoming job ready would he be willing to relocate to where a job was offered? Probe deeply on this question.

6. Find out what things would keep him from attending TAT every day.

7. What personal problems does applicant have that would prevent him from attending regularly? (marital, babysitting, debts, etc.)

8. If not a high school graduate, would he be willing to pursue a GED program while at TAT?

9. How does his immediate family feel about his attending TAT?

10. Check RIN application question concerning any court convictions--if checked yes, get all details such as charge, date, disposition, etc.

EDUCATION

1. What was the highest grade completed?
2. What were his best subjects? _____ Poorest? _____
3. What shop courses did he have in high school? _____
4. What shop courses did he have after high school? _____

OVERALL RATING

Summary of Assets:

Summary of Liabilities:

Overall Summary and Recommendation:

In interviewer's opinion, how does this applicant rate for TAT?

Poor_____ Below Average_____ Average_____ Above Average_____ Excellent_____

TJF:blw
11/8/73

APPENDIX B

TRAINING AND TECHNOLOGY

P. O. BOX 117 ● OAK RIDGE, TENNESSEE ● 37830

Oak Ridge Associated Universities
University of Tennessee
Union Carbide Corporation Nuclear Division
Conducted at the Oak Ridge Y-12 Plant

Oak Ridge Associated Universities in cooperation with Union Carbide Corporation-Nuclear Division and the University of Tennessee is currently engaged in an experimental manpower training program designed to provide industry with advanced learners in six skill and technical areas, including industrial electronics repair and maintenance.

Information from you regarding your use of and needs for electronics personnel will be helpful to us in further planning of our curriculum. You are asked to assist us by completing the enclosed inquiry form. Your cooperation in giving the information requested will be appreciated.

We will have electronics classes graduating in December, 1967, March, 1968, and July, 1968. The trainees in these classes will have had approximately 2000 hours of intensive training in an industrial environment. If you are interested in any of these graduates as advanced trainees or beginning-level workers, we will be pleased to hear from you.

In addition to the inquiry form, we are enclosing a brief description of the electronics curriculum and a brochure describing the program in additional detail.

Sincerely yours,

Wendell H. Russell
Director

JOS:pb
Enclosures

OPERATED BY OAK RIDGE ASSOCIATED UNIVERSITIES FOR THE U.S. DEPARTMENT OF LABOR
AND THE U.S. OFFICE OF EDUCATION UNDER INTERAGENCY AGREEMENTS WITH THE U.S. ATOMIC ENERGY COMMISSION

ELECTRONICS INQUIRY FORM

DIRECTIONS: Please provide in the appropriate columns or spaces below the information that is requested.

1. Do you employ electronics technicians or instrument mechanics? Yes___ No___
2. If you are in need of additional electronics employees, how many?_____
3. How many additional electronics employees do you anticipate needing by the end of 1967?___ By 1968?_____
4. What types of electronics maintenance and repair duties are required by your company? (Check the appropriate spaces)
   a. Industrial equipment such as Honeywell, L & N and Foxboro._____
   b. Pneumatic equipment by such manufacturers as Taylor, Foxboro and Bristol.___
   c. Vacuum instrumentation._____
   d. PH instrumentation._____
   e. Voltage control systems._____
   f. Temperature control instrumentation._____
   g. Pressure control instrumentation._____
   h. Facsimile transmission and reception instrumentation._____
   i. Test instruments._____
   j. Numerical machine control units._____
   k. Radiation generating and measuring equipment._____
   l. Communications equipment._____
5. Do you have an apprenticeship or similar training program for electronics workers? Yes___ No___
6. Do you give credit for prior training to participants in your apprenticeship program? Yes___ No___

7. What is the approximate wage range from trainee or beginner to experienced electronics worker? _____ to _____

8. Comments. (Please add anything you feel may be pertinent in connection with this inquiry):

Name _____

Position _____

Company _____

City _____

Date _____

ORAU
JLE:dj
6/8/67

TRAINING AND TECHNOLOGY

P. O. BOX 117 ● OAK RIDGE, TENNESSEE ● 37830

Oak Ridge Associated Universities
University of Tennessee
Union Carbide Corporation Nuclear Division
Conducted at the Oak Ridge Y-12 Plant

The Oak Ridge Associated Universities, in cooperation with the Union Carbide Corporation-Nuclear Division and the University of Tennessee, is currently engaged in an experimental training program designed to develop skill and knowledge in six basic areas of employment. This program is supported by the U. S. Department of Labor and the Manpower Training and Development Act.

One of the areas of training is Mechanical Engineering Technology in which instruction is given to develop three levels of drafting competence. These are:

1. Drafting technician - Able to design, test, analyze data and prepare reports under direction of engineers and scientists.

2. Design draftsman - Able to complete working drawings from an engineer's or designer's sketches. Training may be specialized in a field as tool design.

3. Detailer draftsman - Able to prepare detail drawings of a variety of mechanical systems and equipment from layout drawings or sketches.

Information regarding your use of and need for draftsmen will be helpful to us in planning specific course content. Please assist us by completing the enclosed inquiry form. Your cooperation will help provide training which will meet your needs.

We will have drafting classes graduating in December, 1967, March, 1968, and July, 1968. The trainees in these classes will have had approximately 2000 hours of intensive training in an industrial environment. If you are interested in any of these graduates as advanced trainees, we will be pleased

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AND THE U.S. OFFICE OF EDUCATION UNDER INTERAGENCY AGREEMENTS WITH THE U.S. ATOMIC ENERGY COMMISSION

to hear from you. Placement of trainees will be made through the Knoxville office of the Tennessee Department of Employment Security.

In addition to the inquiry form which is enclosed, you will also receive a copy of the present curriculum and a brochure which describes the skill areas in the Training and Technology Project.

Sincerely yours,

Wendell H. Russell
Director

JOS:pb

Enclosures

TRAINING AND TECHNOLOGY

Oak Ridge Associated Universities
Union Carbide Corporation
University of Tennessee

DRAFTING INQUIRY FORM

DIRECTIONS: **Please provide, in the appropriate columns or space below, the information that is requested.**

---

1. **Type of Drafting** **Does your Company utilize this type of drafting?**

	YES	NO
a. Piping		
b. H.V.A.C.		
c. Electrical		
d. Electronic		
e. Architectural		
f. Structural		
g. Aeronautical		
h. Patent		
i. Sheet Metal		
j. Topographic & Mapping		
k. Machine & Tooling		
l. Technical illustrating		

2. How many Drafting personnel are currently employed by your company?

   a. Drafting Technicians (Engineering aides) _____

   b. Engineering Draftsmen (Design) _____

   c. Draftsmen _____

3. How many additional personnel will you require:

Types	1967	1968	1969
a. Drafting Technicians	_____	_____	_____
b. Engineering Draftsmen	_____	_____	_____
c. Draftsmen	_____	_____	_____

4. How much previous occupational experience do you require for:

   a. Drafting Technicians _____

   b. Engineering Draftsmen _____

   c. Draftsmen _____

5. Do you prefer drafting personnel whose training has been in the broad areas of theory, e.g., mathematics and general science, or one trained chiefly in job performance and practical applications, or a combination thereof?

	Technicians	Engineering Draftsmen
Very strong in theory	_____	_____
Strong in theory but some practical	_____	_____
About balanced in theory and practical	_____	_____
Strong in practical with some theory	_____	_____
Very strong in practical	_____	_____

6. What are the approximate salary ranges of your drafting personnel?

   a. Drafting Technicians _____

   b. Engineering Draftsmen _____

   c. Draftsmen _____

7. Are there any special job qualifications which your drafting personnel must meet?

   _____

   _____

   _____

8. Comments: (Please add whatever you think may be pertinent in connection with this inquiry.) _____

   _____

   _____

_____ _____

Name Company

_____ _____

Position Date

AU
S:dj
27/67

TRAINING AND TECHNOLOGY

P. O. BOX 117 ● OAK RIDGE, TENNESSEE ● 37830

Oak Ridge Associated Universities
University of Tennessee
Union Carbide Corporation Nuclear Division
Conducted at the Oak Ridge Y-12 Plant

Oak Ridge Associated Universities in cooperation with the Union Carbide Corporation - Nuclear Division, and the University of Tennessee, is currently engaged in an experimental MDTA training program designed to provide training in basic areas of glass fabrication techniques. This program is preparing trainees who could be employed as glass fabricators in college or university research activities. Skills, techniques, and related information in the areas of bending, shaping, forming and blowing of glass for applications in various fields of scientific interest are described in the accompanying Work History sheet.

You may be interested to know that our glass blowing class will graduate in July, 1968 with 42 weeks of intensive training. If you are interested in employing any of these graduates of glass fabricators, we will be pleased to hear from you.

Also enclosed is a questionnaire on which we would appreciate your remarks.

Sincerely yours,

John O. Simpson
Placement Officer

JOS:pb

Enclosures

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AND THE U.S. OFFICE OF EDUCATION UNDER INTERAGENCY AGREEMENTS WITH THE U.S. ATOMIC ENERGY COMMISSION

GLASS BLOWING PLACEMENT QUESTIONNAIRE

NAME_____

TITLE_____

COMPANY_____

LOCATION_____

1. Do you employ Glass Blowers? Yes _____ No _____ How many?_____

2. Are you in need of more Glass Blowers than you now have? If so, how many?_____

3. What do you anticipate your need for additional Glass Blowers will be in the next six to eight months?_____In 1969_____.

4. What types of Glass Blowing are done by your company?

   Bench_____ Lathe_____

   Glass to ceramic_____ Glass to metal_____

5. Are your Glass Blowers associated with any particular union?

6. What is the approximate wage scale for Glass Blowers in your vicinity?_____

   _____ What are the fringe benefits?_____

   _____

7. Do you have a company test for Glass Blowers? _____If so, what types of Glass Fabrication are included in the test? _____

   _____What are the certification requirements?_____

   _____

8. Additional comments:

ORAU
JOS:pb
2/16/68

PHYSICAL TESTING INQUIRY FORM

Oak Ridge Associated Universities
Union Carbide Corporation
University of Tennessee

DIRECTIONS: Please provide, in the appropriate colums or spaces below, the information that is requested.

Type of Test or Inspection	Does your Company Perform this Test	
	Yes	No
1. Non-destructive Testing		
a. Radiography		
b. Magnetic Particle		
c. Liquid Penetrant		
d. Ultrasonic		
e. Eddy Current		
f. Other _____		
2. Materials Properties		
a. Tensile and Compression		
b. Hardness		
c. Creep		
d. Density		
e. Thermal Properties		
f. Other _____		
3. Metallography		

4. How many Physical Testing technicians are currently employed by your company?

_____

5. How many similar technicians do you now require, but do not have?

_____

6. How many additional technicians will you require in 1967?

_____

7. How many additional technicians will you require in 1968?

_____

8. Does your company require that each technician be trained in more than one of the three major areas listed above, i.e., NDT, Materials Properties, Metallography? If so, what are the areas?_____

_____

9. Do you prefer a technician whose training has been in the broad areas of theory, e.g., mathematics and general science, or one trained chiefly in job performance and practical applications, or a combination thereof?

Very strong in theory_____

Strong in theory but some practical_____

About balanced in theory and practical_____

Strong in practical with some theory_____

Very strong in practical_____

10. Comments: (Please add whatever you think may be pertinent in connection with this inquiry)_____

_____

_____

Name_____ Company_____

Position_____ Date_____

ORAU
HRK:jc
12/2/66

JOB PROSPECTS FOR WELDING CANDIDATES

Questionnaire for use with visit to prospective employers of TAT graduate welders.

NAME_____

TITLE_____

COMPANY_____

LOCATION_____

1. Do you employ welders? Yes_____ No_____ How many?_____
2. Are you in need of more welders than you now have? If so, how many?_____
3. What do you anticipate your need for additional welders will be in the next six to eight months?_____ In 1968_____
4. What types of welding are done by your company?

   Oxy-Acetylene_____ Construction____ Fabrication_____

   Arc _____ Job Shop_____ Outside_____

   Heli-Arc____ Pipe_____ Inside_____
5. If you are not presently using Heli-Arc welding, do you plan to add to this type of welding?
6. Are your welders associated with any particular union?
7. What is the approximate wage scale for Heli-Arc welders in your vicinity?_____ _____ For Arc welders?_____What are the fringe benefits?____ _____
8. Do you have a company test for welders?_____ If so, what types of welding are included in the test? _____What are the certification requirements?_____

9. List of special job qualifications:

Experience_____ Weight_____

Age_____ Others_____

ADDITIONAL COMMENTS

ORAU
JOS:dj
1/30/67

TRAINING AND TECHNOLOGY

P. O. BOX 117 ● OAK RIDGE, TENNESSEE ● 37830

Oak Ridge Associated Universities
University of Tennessee
Union Carbide Corporation Nuclear Division
Conducted at the Oak Ridge Y-12 Plant

Gentlemen:

Oak Ridge Associated Universities in cooperation with the Union Carbide Corporation-Nuclear Division and The University of Tennessee is currently engaged in an experimental MDTA training program designed to provide advanced learners in the machining trades. Setup, operation and inspection, utilizing standard and numerically controlled machines will be emphasized.

Information from you regarding your use of and need for machinists will be helpful to us in planning the course content. You are asked to assist us by completing the enclosed inquiry form. Your cooperation in giving us the information requested will be appreciated.

We will have machinist classes graduating in December, 1967, March, 1968, and July, 1968. The trainees in these classes will have had approximately 2000 hours of intensive training in an industrial environment. If you are interested in any of these graduates as advanced trainees, we will be pleased to hear from you. Placement of trainees will be made through the Knoxville office of the Employment Security.

In addition to the inquiry form which is enclosed, you will also receive a brochure which describes the six skill areas in which trainees are studying and a copy of the machining curriculum.

Sincerely yours,

Wendell H. Russell
Director

JOG:pb
Enclosures

OPERATED BY OAK RIDGE ASSOCIATED UNIVERSITIES FOR THE U.S. DEPARTMENT OF LABOR
AND THE U.S. OFFICE OF EDUCATION UNDER INTERAGENCY AGREEMENTS WITH THE U.S. ATOMIC ENERGY COMMISSION

TRAINING AND TECHNOLOGY

MACHINING INQUIRY FORM

Oak Ridge Associated Universities
Union Carbide Corporation
University of Tennessee

DIRECTIONS: Please provide, in the appropriate columns or spaces below, the information that is requested.

I. Type of Machine	Does your Company Use? Yes	No
1. Engine Lathe		
2. Duplicator Lathe		
3. Turret Lathe		
4. Vertical Turret Lathe		
5. Horizontal Milling Machine		
6. Vertical Milling Machine		
7. Shaper		
8. Radial Drill		
9. Surface Grinder		
10. Cylindrical Grinder		
11. Tool and Cutter Grinder		
12. Numerically Controlled Jig Bore		
13. Horizontal Boring Mill		
14. Jig Bore		
15. Optical Comparator		
16. Saws		

II. How many machinists are currently employed by your company? _____

III. How many machinists do you now require but do not have? _____

How many machinists will you require in the next six months? _____

How many machinists will you require in 1968? _____

IV. Do you have an apprenticeship or similar training program for machinists? _____

V. Do you give credit in your apprenticeship or other training program to advanced level trainees? _____

VI. Would you give extra consideration to applicants who can do their own set-ups and grind their own tools?_____

VII. Do you desire applicants that have taken shop math, shop theory, heat treating and blue print reading in connection with their training? _____

VIII. What per cent of your machinists are involved in repetitive work only? _____

IX. Comments: (Please add whatever you think may be pertinent in connection with this inquiry).

_____

_____

_____

Name_____ Company_____

Position_____ Date_____

MnU
MAS:rp
2/27/67

APPROACHES TO INDUSTRIAL RESOURCES FOR THREE TYPES OF SPONSOR ORGANIZATIONS

TRAINING PROGRAM ELEMENTS

	MANPOWER AGENCIES	EDUCATIONAL INSTITUTIONS	PRIVATE INDUSTRIES
Potential Trainee Targets	Disadvantaged Veterans Unemployed, Underemployed Welfare Recipients Correctional Inmates, Ex-Offenders	High School Students Junior College Students Adult Education Students Vocational Education Teachers	Local Residents Minorities Employees to be Upgraded Vocational Students
Contracting Parties and Documents	Interagency Agreement is "Umbrella" for Operations: AEC/TAT↔DOL/DHEW↔State/Local Agencies		
	• Class-Size Sponsorships • Co-Sponsor with Education and Industry • Individual Trainee Referrals	Contract Letters with ORAU/TAT specify length of training, number of trainees or slots, costs, etc.	Letters of Understanding: Agreement on terms with ORAU/TAT and co-sponsoring manpower, education or development agency
Partnership Cost Arrangements	Subsistence Costs AEC, DOL/Manpower Agency (State ES, CEP, WIN, other) pay allowances, transportation and certain trainee services Training Costs DHEW/Voc-Ed, State/Local Agency pay institutional training (instruction and related costs)	No allowances Schools (or other educational agencies) pay institutional training costs	While industry pays allowances for trainees, plus transportation to site, HEW/Voc-Ed agencies pay institutional training
Division of Responsibilities	Recruitment by both or by TAT Selection by both or by TAT Training by TAT Placement by sponsor or by TAT	Recruitment by school Joint selection Training by TAT (or skill and technical training by TAT with schools doing trade-related instruction) Placement by TAT, by sponsor, or both	Recruitment by industry, by TAT or both Joint selection by TAT with industry Training by TAT, according to jointly developed specifications and curricula for in-industry jobs Placement by industry, with TAT assistance